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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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Rosalie A. Centeno
Rosalie A. Centeno Secretary

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TC 1700

In the Application of Peter Dress et al

Ser.No.: 09/913,986

Filed: August 16, 2001

For: METHOD AND APPARATUS FOR TREATING SUBSTRATES

Commissioner of Patents

Alexandria, Virginia 22313-1450

INFORMATION DISCLOSURE STATEMENT

In accordance with 37 CFR § 1.56, Applicant wishes to call the attention of the Examiner to the following references:

- 1) JP 9253561
- 2) JP 3056163
- 3) JP 10092713
- 4) JP59208832
- 5) US 5,650,196

Reference 1, JP 9253561 discloses the following: PROBLEM TO BE SOLVED: To form a coating film having a uniform film thickness without the occurrence of unequal coating application on a substrate surface.

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SOLUTION: A substrate holding section is composed of a substrate-supporting member 10 holding the substrate 100, a cap member put thereon and a discharge hole opening/closing hole 30. An air feed hole 23 is formed atop this cap member and is opened and closed by an air feed opening/closing part 40. The air feed opening/closing part 40 and the discharge hole opening/ closing hole 30 respectively close the air feed hole 23 and the discharge hole at the time of spin coating of a treating liquid. The spin coating of the substrate 100 is thus executed in a hermetically closed atm. A first ring magnet 4 and second ring magnet 5 descend to operate the air feed opening/closing part 40 and the discharge hole opening/closing hole 30, respectively, at the end period of the spin coating, thereby opening the air feed hole 23 and the discharge port. The outdoor air is thus supplied to the substrate surface to accelerate drying.

Reference 2, discloses the following: PURPOSE: To prevent the contamination of the rear of a substrate by providing a shoulder part enclosing the outer periphery of the substrate and forming a groove to the contact part with the outer peripheral part of the rear of th substrate to be coated. CONSTITUTION: A groove 15 is formed to the contact part with the outer peripheral part of the rear of a substrate and a piercing hole 16 is opened to a part of the groove 15. Whereupon, a viscous liquid can not penetrate toward the rear 19 of the substrate by a capillary phenomenon. Since the groove 15 is under atmospheric pressure, the viscous liquid is sucked under vacuum and can not penetrate in the rear of the substrate. Therefore, the contamination of the rear of the substrate with the viscous liquid can be prevented.

Reference 3, JP 20092713, discloses the following: PROBLEM TO BE SOLVED: To coat a major surface of a semiconductor wafer with coating liquid to form a film of uniform thickness.

SOLUTION: A coating device is provided with a chuck 3 for holding a semiconductor wafer 1 with its major surface 1a facing down, a motor 4 for rotating the semiconductor wafer 1 around its central axis through the chuck 3 and a nozzle 5 for sending liquid 2 for forming an antireflective film to the center of the major surface 1a of the rotating semiconductor wafer 1 which can be moved relatively closer to the semiconductor wafer 1. The whole major surface 1a is coated with the liquid 2 for forming an antireflective film by rotating the semiconductor wafer 1 with its major surface 1a facing down.

Reference 4, JP 59208832, discloses the following: PURPOSE: To manufacture an applicator which can equalize the film thickness of an application material such as a resist by downward supporting the surface to be applied of a material to be applied and supplying the application material from the lower section of the surface to be applied. CONSTITUTION: A cover 4 is opened, the resist applying surface of a wafer 8 fed into a vessel 1 is directed downward, and the wafer is sucked by a wafer chuck 7 under vacuum. The wafer chuck 7 and the lower resist applying surface of the semiconductor wafer 8 supported by the wafer chuck 7 are brought into contact with the surface of a resist 2 in the resist vessel 1 by dropping a cylindrical body 5 by the revolution of a worm 6, and the resist 2 is applied on the whole surface of the resist applying surface. The wafer 8 is turned at low speed together with the wafer chuck 7 by a spinning motor 10 at that time, but it may not always be rotated. The wafer 8 is lifted up to a position higher than the surface of the resist 2, and turned at high speed required by the revolution at high speed of the spinning motor 10, and the resist 2 applied on the whole surface of the resist applying surface is brought to desired uniform film thickness.

Reference 5, US 5,650,196 (equivalent to JP 2657044), is in the English language and therefore needs no further discussion as to its relevance.

Copies of the listed documents are submitted herewith along with the form PTO-1449.

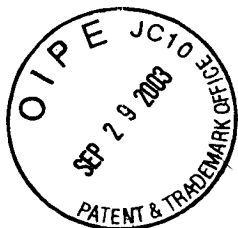
It is respectfully requested that any fees required and not enclosed herewith or any shortages in any fees be charged to Deposit Account 02-1653.

Consideration of the foregoing in relation to this application is respectfully requested.

Respectfully submitted,

Robert W. Becker, Reg. No. 26,255
for the Applicants
Robert W. Becker & Associates
707 Hwy 66 East, Suite B
Tijeras, NM 87059
Telephone: (505) 286-3511
Telefax: (505) 286-3524

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Complete if Known	
	Application Number	09/913,986
	Filing Date	August 16, 2001
	First Named Inventor	Peter Dress, et al
	Group Art Unit	1763
	Examiner Name	Karla Moore
	Attorney Docket No.	AZ 2796

U. S. PATENT DOCUMENTS							
Examiner Initials	Cite No.	Patent Number	Issue Date	Patentee	Class	Subclass	Filing Date
	5	5,650,196	7/22/1997	Muhlfriedel et al			6/30/1994

FOREIGN PATENT DOCUMENTS							
Examiner Initials	Cite No.	Document Number	Publication Date	Country or Patent Office	Class	Subclass	Translation
							Yes No
	1	JP 9253561	30 Sep 1997	Japan			X
	2	JP 3056163	11 Mar 1997	Japan			X
	3	JP 10092713	10 Apr 1998	Japan			X
	4	JP 59208832	27 Nov 1984	Japan			X

OTHER PRIOR ART & NON PATENT LITERATURE DOCUMENTS		
Examiner Initials	Cite No.	Citation
Examiner		Date

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